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EXAMINER	
JOHNSON, MATTHEW A	
ART UNIT	PAPER NUMBER
3656	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/594,869	TAUBE ET AL.	
	Examiner	Art Unit	
	MATTHEW A. JOHNSON	3656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 March 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,10,12-17 and 19-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,10,12-17 and 19-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 March 2010* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 14 and 15, are rejected under 35 U.S.C. 102(e) as being anticipated by Kobayashi et al. (USPGPUB-20030066372 A1).

3. Re claims 1, 14 and 15: Kobayashi discloses a vehicle (Fig. 1) having steering wheels (56) and including an electric motor (48) comprising:

- An input (see paragraph [0035]) for receiving an electrical signal from a control unit (46) of said vehicle
- A housing (3) encapsulating a rotating member (24), said rotating member comprising a ball nut portion (24a)
- One or several arrangements (15) for generating a magnetic field with respect to said electrical signal (see paragraphs [0035], [0040] and [0046])
- A displaceable shaft (26) at each end connected to said steering wheels (Fig. 1) and comprising a ball screw portion (41)
- A ball return portion (71a-71d; Fig. 3)

- A carrying sleeve (13) comprising on its outer surface magnetic elements (16), said carrying sleeve being provided on said rotating member (Fig. 2) substantially parallel with an extension direction of said shaft for interaction with said one or more several arrangements for generating a magnetic field and rotating said ball nut (paragraph [0046])
- Said one or several arrangements for generating a magnetic field are configured to generate a magnetic field when a current corresponding to said electrical signal flows through said arrangements and to interact with said magnetic elements to produce a torque, which rotates the sleeve and the ball nut forcing said shaft to displace linearly ([0046])
- said ball return comprises a ball nut (24) having multiple linear ball returns (70a-70d, Fig. 3)
- said ball return comprises a single or multi liner system (70a-70d), in which the balls are lead back after each circulation around the shaft and the liner picks the balls out of a ball track and guides them with a path over the portion between the ball tracks of the shaft (paragraph [0043] and Fig. 3)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (USPGPUB-20030066372 A1) in view of Koharagi et. al. (USP-6,376,958).

Re claim 10: Kobayashi discloses all of the claim limitations as described above.

Kobayashi does not disclose the sleeve is made of a laminated material.

Koharagi teaches a sleeve (7) made of a laminated material (see Abstract) for the purpose of reducing harmonic loss caused by the shaft (C2 L11-31).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have made the sleeve of Kobayashi form a laminated material, as taught by Koharagi, for the purpose of reducing harmonic loss caused by the shaft (C2 L11-31).

Claims 12 and 16, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (USPGPUB-20030066372 A1) in view of Nishimura (USP-7,350,434).

Re claims 12 and 16: Kobayashi discloses all of the claim limitations as described above.

While Kobayashi does indeed disclose said ball return comprises a notch arranged diagonally on the ball nut (Fig. 3), Kobayashi does not disclose the ball return comprises a preload system, a return cap having a return channel and a wiper arranged between the return cap and the shaft, and grooves or ball tracks in which the balls return, said return cap system picks the balls up at one end of the nut and leads them back through a hole in the nut, to the other side.

Nishimura discloses a ball return (Figs. 1 and 7) comprising a preload system (20), a return cap (5) having a return channel (56, 60) and a wiper (7) arranged between the return cap and the shaft (1, Fig. 1), and grooves or ball tracks (56, 60) in which the balls return, said return cap system picks the balls up at one end of the nut and leads them back through a hole in the nut, to the other side (Fig. 1), for the purpose of providing a ball return which minimizes the total length of the nut, guides the balls smoothly between the threads and minimizing the generation of noise when the balls are circulated at high speeds (C2 L22-29).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have included in the device of Kobayashi, a preload system, a return cap having a return channel and a wiper arranged between the return cap and the shaft, and grooves or ball tracks in which the balls return, said return cap system picks the balls up at one end of the nut and leads them back through a hole in the nut, to the other side, as taught by Nishimura, for the purpose of providing a ball return which minimizes the total length of the nut, guides the balls smoothly between the threads and minimizing the generation of noise when the balls are circulated at high speeds (C2 L22-29).

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (USPGPUB-20030066372 A1) in view of Godek (USP-6,026,924).

Re claim 19: Kobayashi discloses all of the claim limitations as described above.

Kobayashi does not explicitly disclose said housing is at least partly filled with a lubrication agent.

Godek teaches a steering device having a housing at least partly filled with a lubrication agent (68, see Fig. 1) for the purpose of providing a damping characteristic in the steering system offering better control (C3 L4-27).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified the device of Kobayalshi, such that said housing is at least partly filled with a lubrication agent, as taught by Godek, for the purpose of providing a damping characteristic in the steering system offering better control (C3 L4-27).

7. Claims 13, 17, 20 and 21, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (USPGPUB-20030066372 A1) in view of Dolata et al. (USP-5,899,114).

8. Re claims 13, 17, 20 and 21: Kobayashi discloses a vehicle (Fig. 1) having steering wheels (56) and including an electric motor (48) comprising:

- An input (see paragraph [0035]) for receiving an electrical signal from a control unit (46) of said vehicle
- A housing (3) encapsulating a rotating member (24), said rotating member comprising a ball nut portion (24a)
- One or several arrangements (15) for generating a magnetic field with respect to said electrical signal (see paragraphs [0035], [0040] and [0046])
- A displaceable shaft (26) at each end connected to said steering wheels (Fig. 1) and comprising a ball screw portion (41)

- A carrying sleeve (13) comprising on its outer surface magnetic elements (16), said carrying sleeve being provided on said rotating member (Fig. 2) substantially parallel with an extension direction of said shaft for interaction with said one or more several arrangements for generating a magnetic field and rotating said ball nut (paragraph [0046])
- Said one or several arrangements for generating a magnetic field are configured to generate a magnetic field when a current corresponding to said electrical signal flows through said arrangements and to interact with said magnetic elements to produce a torque, which rotates the sleeve and the ball nut forcing said shaft to displace linearly ([0046])

While Kobayashi does indeed disclose a ball return portion (71a-71d; Fig. 3), Kobayashi does not disclose said displaceable shaft comprising a ball return portion, said ball return comprises a single linear screw in which a notch forces balls passing through the notch to change track to an adjacent track, said ball return portion comprises a linear return placed in the shaft and the balls are lead through a path over a portion between ball tracks of the ball nut.

Dolata teaches a displaceable shaft (14) comprising a ball return portion (35), said ball return comprises a single linear screw (14) in which a notch (35a) forces balls passing through the notch to change track to an adjacent track, said ball return portion comprises a linear return (35) placed in the shaft and the balls are lead through a path over a portion between ball tracks of the ball nut (Figs. 1 and 4), for the purpose of

minimizing the overall size of the device and to achieve a high load capacity (C1 L41-51).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to have modified the device of Kobayashi such that the displaceable shaft comprises a ball return portion, said ball return comprises a single linear screw in which a notch forces balls passing through the notch to change track to an adjacent track, said ball return portion comprises a linear return placed in the shaft and the balls are lead through a path over apportion between ball tracks of the ball nut, as taught by Dolata, for the purpose of minimizing the overall size of the device and to achieve a high load capacity (C1 L41-51).

Response to Arguments

9. Applicant's arguments with respect to claims 1, 20 and 21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW A. JOHNSON whose telephone number is (571)272-7944. The examiner can normally be reached on Monday - Friday 9:00a.m. - 5:30p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MATTHEW A JOHNSON/
Examiner, Art Unit 3656

/Richard WL Ridley/
Supervisory Patent Examiner, Art Unit 3656